

1027-16-239

**Jose Antonio De la Pena\*** ([jap@matem.unam.mx](mailto:jap@matem.unam.mx)), UNAM, Instituto de Matematicas, Ciudad Universitaria, 04510 DF Mexico, Mexico. *Coxeter transformations: from Lie algebras to singularity theory.*

Coxeter transformations play an important role in the theory of Lie algebras. Namely, the Weyl group is finite (resp. affine, contains a free subgroup) if the Coxeter elements are periodic (resp. have spectral radius  $1, > 1$ ). For a hereditary algebra  $A = kD$  associated to a quiver  $D$  without oriented cycles, the Coxeter transformation is induced from the Auslander-Reiten equivalence of the derived category  $D^b(\text{mod } A)$  to the Grothendieck group of  $A$ . The spectral properties of this transformation are essential to understand the representation theory of  $A$ . For canonical algebras  $A$  over the complex numbers, spectral properties of the Coxeter transformations are related to the classification of Fuchsian groups and their associated singularities. (Received February 27, 2007)